OMICS International
conferenceseries.com

Ruben Lopez-Nicolas et al., J Food Process Technol 2015, 6:5
http://dx.doi.org/10.4172/2157-7110.S1.017

5th Euro-Global Summit and Expo on
Food & Beverages
June 16-18, 2015 Alicante, Spain

SATIN (Satiety Innovation) project: Enriched food with indigestible fibres. Its stability, biological activity and satiety health benefits

Ruben Lopez-Nicolas[1], Carmen Frontela-Saseta[1], Cindy Duysburgh[2], Laura Stucchi[3], Angela Bonnema[4], Pascale Fança-Berthon[5], Hans van der Saag[6], Douwina Bosscher[7], Joanne Harrold[8], Jason Halford[8], Massimo Marzorati[2], Lia Scarabottolo[3] and **Gaspar Ros-Berruezo[1]**

[1]Campus Mare Nostrum, Spain
[2]ProDigest, Belgium
[3]Axxam, Italy
[4]Cargill R&D Centre, USA
[5]Naturex SA, France
[6]BioActor BV, Netherlands
[7]Cargill R&D Centre, Belgium
[8]University of Liverpool, UK

Now-a-days, overweight and obesity are a major challenge to the health of developed developing countries. A strategy followed is based on reduction of food intake based on the physiological concepts of satiety and satiation. To try to elucidate the mechanism of pro-satiety food components, as part of the European funded FP7 SATIN (SATiety INnovation) Project, we have studied by mean of an artificial gastrointestinal dynamic model (SHIME®, Simulator of the Human Intestinal Microbial Ecosystem, resembling physiological and microbiological conditions occurring in the stomach, small intestine and the colon) the stability of key dietary ingredients such as resistant starch (Actistar® 11700, Cargill), β-glucans (Viscofiber®, Naturex) and arabinoxylans (NAXUS®, BioActor), and their effect on the release of satiety hormones by entero-endocrine cell lines and on chemosensor receptors' activation, as well as the activity of colon microbiota. Samples were monitored by HPLC-MS for the stability of the key bioactive component of the ingredients. Bioavailability (using the Caco-2 cell line) and the impact of ingredients on the gut microbial communities were also evaluated. The stability of the three ingredients was very similar, showing a high resistance to upper gastrointestinal conditions, while in the colon, they were fermented in different grade. Arabinoxylans was highly fermentable, while resistant starch and β-glucans showed lower degradation by colon bacteria (20-35%, 70-75% and 70% of the ingredients were found at the end of the colon, respectively). Furthermore, changes in microbial fermentation activity could be observed. While resistant starch increased acetate and lactate production, arabinoxylans and β-glucans induced a shift towards more butyrate and propionate. Obtained results from the *in vitro* screening platform on non-digested ingredients, showed arabinoxylans increase GLP-1 and CCK secretion.

Biography

Ruben Lopez-Nicolas has completed his PhD at the University of Murcia and Postdoctoral studies in several reputed centers as Pro Digest, Rowett Institute for Nutrition and Health, and University of Leeds. He is a young Researcher who has published numerous high quality papers in different scientific journals of Molecular Biology and Human Nutrition and has been invited as speaker in several national and international conferences. Now-a-days, he is a Member of ERC Expert Committee to evaluate "Starting Grants", as well as Member of Young Researcher Committee in SATIN.

rubenln@um.es

Notes: